

REMARKS

The present application relates to hybrid maize plant and seed 39R34. Claims 1-32 are currently pending in the present application. Applicant respectfully requests consideration of the following remarks.

Detailed Action

A. Specification

The Examiner has objected to the specification for containing blank lines on page 7 in the bottom paragraph. Applicant respectfully submits that the actual ATCC deposit will be delayed until the receipt of notice that the application is otherwise in condition for allowance. While Applicant does not agree that this rejection is appropriate under 37 C.F.R. §§ 1.801-1.809, Applicant will refrain from deposit of Hybrid 39R34 until allowable subject matter is indicated. Once such notice is received, an ATCC deposit will be made, and the specification will be amended to contain the accession number of the deposit, the date of the deposit, a description of the deposited biological material sufficient to specifically identify it and to permit examination and the name and address of the depository. The claims (1, 5 and 7) will also be amended to recite the ATCC deposit number. In addition, Applicant submits that at least 2,500 seeds of Variety 39R34 will be deposited with the ATCC. In view of this assurance, the rejection under 35 U.S.C. § 112, first paragraph, should be removed (MPEP § 2411.02). Such action is respectfully requested.

B. Claim Objections

The Examiner objects to claims 1, 5, and 7 for the inclusion of a blank line where the ATCC accession number should appear. Applicant wishes to reiterate that Applicant will refrain from deposit of Hybrid 39R34 until allowable subject matter is indicated. Once such notice is received, the claims will be amended to recite the proper ATCC deposit number.

The Examiner further objects to claims 6, 12, 16, 25 and 29 for the use of "A". Applicant has now amended these claims to include --The-- as suggested by the Examiner, thereby alleviating this objection.

C. Claims

Applicant acknowledges the addition of new claims 33 through 42. The new claims do not add new matter as there is literal support for the claims in the originally filed specification (pages 27-39, specification).

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1-32 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claims 1, 5, 7, 11, 15, 19, 24, 28 and 32, and claims dependent thereon, stand rejected as indefinite in the recitation of a plant by the designation "39R34". The Examiner states that since the name "39R34" is not known in the art, the use of this name does not carry art-recognized limitations as to the specific or essential characteristics that are associated with that denomination. The Examiner further states that the name "39R34" does not clearly identify the claimed seeds, plants, and plant parts and does not set forth the metes and bounds of the claimed invention. The Examiner also states that amendment to claims 1, 5, and 7 to recite the ATCC deposit number in which hybrid maize seed 39R34 has been deposited would overcome the rejection.

Applicant respectfully traverses this rejection. Applicant submits the use of the designation "39R34" is not indefinite. One ordinarily skilled in the art would clearly understand that this designation is drawn to a new and distinct hybrid maize seed with the designation of 39R34 and the morphological and physiological traits that are disclosed in the specification. (See Tables 1-4, pages 18-26). Applicant asserts that the use of such a designation is a common practice within the art and would be well understood by one skilled in the art to be designating two distinct and different hybrid maize seeds. In addition, Applicant wishes to reiterate that under 37 C.F.R. §§ 1.801-1.809, Applicant will refrain from deposit of hybrid 39R34 until allowable subject matter is indicated. Once deposit is completed, Applicant will amend claims 1, 5 and 7 accordingly and this rejection will be moot.

Claim 6 stands rejected as there is improper antecedent basis for the phrase "protoplasts" in line 1. Applicant has now amended claim 6 to read —the cells or protoplasts of said cells

having been isolated from a tissue--, as suggested by the Examiner thereby, alleviating this rejection.

The Examiner rejects claims 8 and 21 as it is not clear if the claims are directed towards detasseled plants, or plants that have been transformed with a gene conferring male sterility. Applicant has now amended claims 8 and 21 by adding the recitation --further comprises a genetic factor conferring male sterility--, and added new claims 41-42, as suggested by the Examiner, thus alleviating this rejection. Support can be found on page 13 of the specification, wherein it states "[i]t should be understood that the inbred can, through routine manipulation of cytoplasmic or other factors, be produced in male-sterile form. Such embodiments are also contemplated within the scope of the present claims."

The Examiner asserts that claims 11, 15, 19, 24, 28 and 32 are indefinite in their recitation of "excellent", "good" "above average" and "suited", as the Examiner states these terms do not reasonably apprise one of the scope of the invention.

Applicant respectfully traverses this rejection. Each of these claims recites two requirements, first that 39R34 be an ancestor of the plant and second, that the claimed plant be "capable of expressing a combination of at least two 39R34 traits" selected from a Markush grouping. Applicant notes that the Markush listing is directed to "39R34" traits. Thus, Applicant submits that the recitation of 39R34 traits clearly delineates the traits listed as those which are from 39R34 or ancestors thereof. The recitation of "39R34" in front of the term traits clearly indicates that the traits must be originating from 39R34. This is particularly so since the claim also requires that the plant 39R34 must be an ancestor of the claimed plant. Applicant further submits that the adjectives used within the claims are not indefinite as they do clearly characterize and positively recite the degree of expression of the particular traits within the application in Tables 1-4 (pages 18-26). This terminology is well known in the art and commonly used within breeding techniques of hybrid plants. In addition, Applicant has amended claims 11, 15, 19, 24, 28 and 32 by adding the threshold, having 50% of the alleles, as well as an assayable function, capable of expressing at least a combination of two traits of 39R34. There is literal support for the amended claims found in the specification on page 3 and beginning on page 27 of the instant specification. Further, Applicant has now deleted the areas of adaptability therefore alleviating the rejection to the term "suited". Applicant therefore respectfully submits

that this language is not indefinite and would be understood by one in the art and is the terminology of use within the art. Therefore, Applicant respectfully requests reconsideration.

Furthermore, in Georgia-Pacific, the Federal Circuit stated that "...the policy of the patent statute contemplates granting protection to valid inventions, and this policy will be defeated if protection were to be accorded to those patents which were capable of precise definition." Georgia-Pacific Corp. v. U.S. Plywood Corp., 258 F.2d 124, 136, 118 U.S.P.Q. 122 (2nd Cir.). While some decisions have advocated the general statement that "[a]n invention must be capable of accurate definition, and it must be accurately defined, to be patentable, (See United Carbon Co. v. Binney & Smith Co., 1942, 317 U.S. 228, 237, 63 S.Ct. 165, 170, 87 L.Ed. 232), the Federal Court has stated that "such general statements, however, must be viewed in the context of circumstances. Objectionable indefiniteness must be determined by the facts in each case, not by reference to an abstract rule." Georgia-Pacific at 136. "Patentable inventions cannot always be described in terms of exact measurements, symbols and formulae, and Applicant necessarily must use the meager tools provided by language, tools which admittedly lack exactitude and precision. If the claims read in light of the specification, reasonably apprise those skills in the art both in utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more." Id. (See North American Vaccine Inc. v. American Cyanamide Co., 7 F.3d 1571, 28 U.S.P.Q.2d 1333, 1339 (Fed. Cir. 1993)). Moreover, it is against the policy of the patent statute to bar patent protection for inventions that are incapable of precise definition. Georgia-Pacific at 136. With respect to the above-mentioned terms, the claims are as precise as the subject matter of the invention permits. Therefore, Applicant respectfully requests reconsideration of the claims.

Claims 10, 14, 18, 23, 27, and 31 are indefinite for improper antecedent basis. The Examiner states the claims indicate they are directed to the corn plant breeding program of claims 9, 13, 17, 22, 26, and 30, respectively. However, claims 9, 13, 17, 22, 26, and 30 are directed to methods, not programs. The Examiner suggests that the recitation "maize plant breeding program" in line 1 of claims 10, 14, 18, 23, 27, and 31 be replaced with --method--. Applicant respectfully submits the claims are directed to a method for producing a maize plant wherein the maize plant of claim 2, or its parts, is used as a source of plant breeding material. This method clearly defines a method utilizing the proprietary hybrid 39R34 to produce a maize plant. The techniques described in the present application in the "Background of the Invention"

(pages 1-7) and "Further Embodiments of the Invention" (pages 27-39) sections clearly define and distinctly claim positive method steps for producing maize plants for small or large scale production. However, in order to expedite prosecution, Applicant has amended the claims in accordance to Examiner's suggestion by changing the recitation "maize plant breeding program" in line 1 of claims 10, 14, 18, 23, 27 and 31 with --method--, thus alleviating this rejection.

In light of the above remarks, Applicant submits that claims 1-32 clearly define and distinctly claim the subject matter Applicant regards as the invention. Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 112, second paragraph.

Rejections Under 35 U.S.C. § 112, First Paragraph

Claims 8-19 and 21-32 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The Examiner asserts the claims are broadly drawn towards a corn plant produced by growing seed of any hybrid maize seed designated 39R34, wherein said plant is male sterile; or any maize plant or its parts wherein at least one ancestor is 39R34 and expresses a combination of at least two 39R34 traits; or a hybrid maize plant grown from seed 39R34, or which has all the morphological and physiological traits as the plant grown from 39R34 seed, and which contains one or more transgenes; or a method for developing a maize plant and the maize plant breeding program comprising said hybrid maize plant comprising one or more transgenes; or any maize plant wherein at least one ancestor is the hybrid maize plant comprising one or more transgenes and which expresses at least two 39R34 traits, or a hybrid maize plant grown from 39R34 seed wherein the genetic material contains one or more transgenes transferred by backcrossing; or a method for developing a maize plant in a maize plant breeding program comprising said hybrid maize plant comprising one or more genes transferred by backcrossing; or any maize plant where at least one ancestor is the hybrid maize plant comprising one or more genes transferred by backcrossing which expresses at least two 39R34 traits. The Examiner further states the specification does not describe 39R34 as being male sterile. The specification discusses how

plants may be manipulated to be male sterile, however the morphological and physiological description of plant 39R34 described in the specification does not indicate that it is male sterile.

Applicant respectfully traverses this rejection. Applicant asserts that large scale commercial hybrid maize production requires the use of some form of male sterility system which controls or inactivates the male fertility (page 2, specification). Applicant respectfully submits that the specification supplies an extensive description and definition of "male sterility" in the hybrid 39R34 (pages 2-4, specification). The present invention teaches how a "reliable method of controlling male fertility in plants offers the opportunity for improved plant breeding" (page 2, specification). It is essential to understand that a hybrid maize seed that is produced using cytoplasmic male sterile (CMS) inbreds are "[p]lants.... are male sterile as a result of factors resulting from the cytoplasmic, as opposed to the nuclear, genome. Thus, this characteristic is inherited exclusively to the female parent in maize plants, since only the female provides cytoplasm to the fertilized seed. CMS plants are then fertilized with pollen from another inbred that is not male sterile" (page 2, specification). Applicant respectfully submits that claims 8, 11-19, 21 and 24-32 do clearly define and distinctly claim the subject matter Applicant regards as the invention. However, in order to expedite prosecution, Applicant has now amended claims 8 and 21 by adding the recitation "further comprises a genetic factor conferring male sterility", and added new claims 41-42, as suggested by the Examiner, thus alleviating this rejection. Support can be found on page 13 of the specification, wherein it states "[i]t should be understood that the inbred can, through routine manipulation of cytoplasmic or other factors, be produced in male-sterile form. Such embodiments are also contemplated within the scope of the present claims."

The Examiner further states the specification does not describe the plants developed by the maize breeding programs, transgenic 39R34 plants, 39R34 plants further comprising genes transferred by backcrossing, or maize plants wherein at least one ancestor is corn variety 39R34 and which expresses at least two of the traits listed in claims 11, 15, 19, 24, 28 or 32. Given the breadth of the claims encompassing corn plant 39R34 the Examiner states the specification fails to provide an adequate written description of the multitude of corn plants and/or parts encompassed by the claims.

Applicant respectfully traverses this rejection. Applicant has amended claims 11, 15, 19, 24, 28 and 32 by adding the threshold, having 50% of the alleles, that limits the variation

permitted among the genus, as well as an assayable function, capable of expressing at least a combination of two traits of 39R34. There is literal support for the amended claims found in the specification on page 3 and beginning on page 27 of the instant specification. Plant breeding techniques known in the art and used in the maize plant breeding program include, but are not limited to the following: recurrent selection backcrossing, pedigree breeding, restriction length polymorphism enhanced selection, genetic marker enhanced selection and transformation. With the amendments to the above-stated claims, Applicant has identified a transgenic 39R34 plant (claim 12), a 39R34 plant further comprising genes transferred by backcrossing (claim 14), or a maize plant wherein at least one ancestor is maize variety 39R34 (claim 15) by defining a particular threshold that limits variation and reciting a functional test to identify such plants. In addition, Applicant has drafted new claims 33-42 which Applicant believes come within the purview of the written description requirement and do not add new matter. Under the written description requirement, Applicant should be allowed to claim the progeny of a cross of maize plants crossed with 39R34 with phenotypic characteristics since distinguishing identifying characteristics in the chemical and biotechnological arts, dealing with DNA, are those such as: partial structure, physical and/or chemical properties, functional characteristics, known or disclosed correlation between structure and function, method of making, and combinations of the above. In plants, these identifying characteristics are those detectable in the phenotype which are manifested through gene expression. Claims to a particular species of invention are adequately described if the disclosure of relevant identifying characteristics are present in the application. Again, one of ordinary skill in the art is reasonably apprised in knowing that a plant crossed with 39R34 will result in a plant having half of the genetic contribution of 39R34. A further limitation set by Applicant is that the plants must be capable of expressing a combination of at least two phenotypic characteristics of 39R34.

Further, Applicant asserts the specification supplies an extensive definition and description of 'transgene' and transgenes of interest. (See generally pages 32-39 for an extensive list of potential transgenes.) Applicant also notes, a person having skill in the art could insert a DNA gene into a selected maize plant. Applicant has defined transgenes in the present application in the paragraph that spans pages 27-28 as follows:

With the advent of molecular biological techniques that have allowed the isolation and characterization of genes that encode specific protein products,

scientists in the field of plant biology developed a strong interest in *engineering the genome of plants to contain and express foreign genes, or additional genes* (perhaps driven by different promoters) in order to alter the traits of a plant in a specific manner. *Such foreign, additional and/or modified genes are referred to herein collectively as "transgenes".* Over the last fifteen to twenty years several methods for producing transgenic plants have been developed, and *the present invention, in particular embodiments, also relates to transgenic versions of the claimed hybrid 39R34.*

(emphasis added) The present application clearly describes and defines a transgene to be a gene transferred into a plant wherein the product of that gene is expressed. This expression will confer a new or improved trait into that plant. However, this gene is but a tiny fraction of the entire genome. In other words, the plant of claim 12 is distinguishable from the prior art plants just as is hybrid 39R34 without the transgenes. Further, the plant of claim 12 also contains a trait(s) that is either improved or additional to the traits of the maize plant of claim 2. The 39R34-transgene plant still expresses the unique combination of traits of 39R34 without the transgenes with the exception of the traits expressed by the transgenes. The trivial modifications introduced by the transgenes to the unique invention of 39R34 are clearly supported and described in the present application.

Finally, the Examiner asserts that the specification provides a narrative of the transgene within the scope of the claim to particularly point out and distinctly claim the subject matter the applicant regards as the invention. However, Applicant respectfully submits that "[t]he test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification. . . . If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more. . . . The degree of precision necessary for adequate claims is a function of the nature of the subject matter." Miles Laboratories, Inc. v. Shandon Inc., 997 F.2d 870 (Fed. Cir. 1993).

In light of the above remarks, Applicant respectfully requests reconsideration and withdrawal of the rejections to claims 8-19 and 21-32 under 35 U.S.C. § 112, first paragraph.

Claims 1-32 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicant respectfully traverses this rejection and reiterates with regard to the deposit of Hybrid 39R34, Applicant wishes to note that:

- a) during the pendency of this application access to the invention will be afforded to the Commissioner upon request;
- b) all restrictions upon availability to the public will be irrevocably removed upon granting of the patent;
- c) the deposit will be maintained in a public depository for a period of thirty years, or five years after the last request for the enforceable life of the patent, whichever is longer;
- d) a test of the viability of the biological material at the time of deposit will be conducted (see 37 C.F.R. § 1.807); and
- e) the deposit will be replaced if it should ever become inviable.

Applicant wishes to state that the actual ATCC deposit will be delayed until the receipt of notice that the application is otherwise in condition for allowance. Once such notice is received, an ATCC deposit will be made, and the specification will be amended to contain the accession number of the deposit, the date of the deposit, a description of the deposited biological material sufficient to specifically identify it and to permit examination and the name and address of the depository. The claims will also be amended to recite the ATCC deposit number. In addition, Applicant submits that at least 2,500 seeds of Hybrid 39R34 will be deposited with the ATCC.

In light of the above remarks, Applicant submits that claims 1-32 clearly describe and distinctly claim the subject matter Applicant regards as the invention. Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 112, first paragraph.

Issues Under 35 U.S.C. § 102/103

Claims 1-32 stand rejected under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Kevern (U.S. Patent 6,242,673). The Examiner states the claims are broadly drawn towards hybrid maize seed designated "39R34". The Examiner further states that Kevern '673 teaches seed of a hybrid maize line designated "37M34", plants produced by growing said seed, and plants and plant parts, including pollen and ovules. The Examiner states that it appears that the claimed plant and seed to the instant invention may be the same as 37M34, given that they exhibit similar traits, such as good early

growth, above average resistance to head smut, and good tolerance to Gibberella ear rot. The Examiner concludes stating that the claimed invention is *prima facie* obvious as a whole to one of ordinary skill in the art at the time it was made, if not anticipated by Kevern '673.

Applicant respectfully traverses this rejection and requests reconsideration of claims 1-32. The Applicant would like to point out that the inventions 39R34 and 37M34 are not the same inventions. Nor are their differences minor morphological variations. Applicant submits that the claimed plant cannot be rendered obvious as it possesses a unique combination of traits which confers a unique combination of genetics. Moreover, Applicant claims a method of making a plant which did not previously exist. Pursuant to the recent Federal Circuit decision, Elan Pharmaceuticals, Inc. v. Mayo Foundation for Medical Education & Research, 304 F.3d 1221, (Fed. Cir. 2002), "a novel patented product is not "anticipated" if it did not previously exist." *Id.* This is the case whether or not the process for making the new product is generally known. *Id.* The invention 39R34 has not previously existed as it is the result of crossing two maize inbred lines GE533276 and GE533139.

Furthermore, when looking at the tables of both inventions, hybrids created using 39R34 as one of the parents are clearly not anticipated by hybrids made using 37M34 as one of the parents. The inventions 39R34 and 37M34 differ for various traits that are not minor. For example, 39J26 has a relative maturity based on the Comparative Relative Maturity Rating System as reported in Table 1, of 77 (page 18). As reported in Table 1 of 6,242,673 Patent, 37M34 demonstrates a relative maturity of approximately 99. Another example is 39R34 has resistance to Common Rust when compared with 37M34. As reported in Table 1, 39R34 has a resistance of 5 (page 19). As reported in Table 1 of 6,242,673 Patent, 37M34 has no teaching. Another example, as reported in Table 1, 39R34 demonstrates above average resistance to Eyespot of 6 (page 19). As reported in Table 1 of the 6,242,673 Patent, 37M34 has no teaching. A third example of the differences is that 39R34 exhibits a superior resistance to European Corn Borer, 2nd generation as compared to 37M34. As reported in Table 1, 39R34 has a superior resistance of 9. As reported in Table 1, 37M34 has a susceptibility of 3. Other traits which differ between the two inventions include: anther color (39R34 pink, 37M34 yellow), length of ear node leaf (39R34 78.3, 37M34 83.0), and silk color (39R34 light green, 37M34 red).

The aforementioned examples all illustrate that there are large differences between 39R34 and 37M34. The examples listed are not exhaustive but they do give ample evidence that the

inventions are not the same. Furthermore, when looking at the tables of both inventions, hybrids created using 39R34 as one of the parents are clearly not anticipated by hybrids made using 37M34 as one of the parents.

Applicant further submits that the claims do not simply recite traits, but instead recites these specific traits only to the extent that they are "39R34" traits; thereby being derived from the seed/germplasm of 39R34. Note, variety with respect to agricultural variety, can be defined as a group of similar plants that by structural features and performance can be identified from other varieties within the same species. When looking at maize plants it would be possible for one ordinarily skilled in the art to find many traits that are similar between varieties such as the disease resistance or growth habit. Nonetheless, the claim also recites that the claimed plant must have 39R34 as an ancestor further indicating that these traits must originate from the 39R34 plant not 37M34. In response to the Examiner's contention that one could not distinguish the claimed plant from the prior art which shows each of these traits, Applicant submits that one can easily tell by reference to the plants breeding history, which can be confirmed by its molecular profile whether the plant did indeed have plant 39R34 as an ancestor and expressed two or more "39R34" traits. Further, any phenotypic trait that is expressed is a result of a combination of all of the genetic material present in the plant, and 39R34 will have its own unique genetic background that will give rise to the claimed plant and this profile along with its combination with other plants will result in a unique combined genetic profile that is the product claimed.

Furthermore, there is no expectation of success that the crossing of the Hybrid 37M34 with some yet to be identified plant would yield a plant with two of the traits enumerated in the claimed invention and at least 50% of its alleles from 39R34 because that particular plant did not begin with the claimed seed 39R34 which is essential. Applicant asserts that it is not the phenotypic characteristics alone that are claimed and taught in the instant invention. It is a combination of physiological and morphological characteristics, as claimed, which make the present Hybrid non-obvious and not anticipated over Kevern '673. Further, In re Thorpe, states that "a product by process claim may be properly rejected over prior art teaching the same product produced by a different process", as noted by the Examiner. In re Thorpe, 227 U.S.P.Q. 964, 966 (Fed. Cir. 1985). However, Applicant submits that this is not the same product physiologically or morphologically as the cited prior art as can be evidenced by one skilled in the art through analysis of the data tables in each. In addition, it is impermissible to use hindsight

reconstruction and the benefit of Applicant's disclosure to pick among pieces which are present in the art, there must be some suggestion to make the combination and an expectation of success. In re Vaeck, 20 U.S.P.Q.2d 1434 (Fed. Cir. 1991). Further, any phenotypic trait that is expressed is the result of the genetic material present in the plant, and 39R34 will have its own unique genetic background that will give rise to the claimed plant and this profile along with its combination with other plants will result in a unique combined genetic profile that is the product claimed. Thus, the present application deserves to be considered new and non-obvious compositions in their own right as products of crossing when 39R34 is used as a starting material.

In light of the above, Applicant respectfully requests the Examiner reconsider and withdraw the rejection to claims 1-32 under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Kevern (U.S. Patent 6,242,673).

Issues Under 35 U.S.C. § 103

Claims 1-32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kevern (U.S. Patent 6,242,673). The Examiner states the "claims are drawn to a hybrid maize plant exhibiting all of the characteristics of 39R34".

Applicant respectfully traverses this rejection. When looking at a maize plant it would be possible to find many traits that are similar between varieties such as the color of flowers or growth habit. However, to say there are similarities in phenotype between two varieties is not the same as saying that the two varieties have the same morphological and physiological characteristics as a whole, or that one is an obvious variant of the other. Further, similarity in phenotype does not mean that the two varieties will perform similarly, particularly in a breeding program. As stated above, variety with respect to agricultural variety may be defined as a group of similar plants that by structural features and performance can be identified from other varieties within the same species.

Applicant submits that Hybrid 37M34 does not exhibit the same characteristics as 39R34. Applicant will illustrate how 39R34 and 37M34 are different. Kevern '673 does not teach or suggest hybrid maize plant 39R34 developed by a maize breeding program or the use of hybrid maize plant 39R34 in the production of tissue culture. It must be recognized that the hybrids provided by this invention are themselves unusual and unobvious results of a common process,

in that they provide the unique combination of such as good early growth, above average resistance to head smut, and good tolerance to Gibberella ear rot (see pages 18-26, specification). Nonetheless, Hybrid 39R34 deserves to be considered as a new and non-obvious composition in its own right as does its tissue culture as products of the process when 39R34 is used as starting material. Applicant points out that 39R34 is a unique plant hybrid which never before existed until Applicant filed the application and until its deposit of the same. While Kevern '673 does teach the general regeneration of maize plants from tissue culture techniques, it does not teach or suggest the use of the unique maize hybrid 39R34. As will be demonstrated below, several morphological and physiological characteristics of Hybrid 39R34 are either different from or not present in 37M34.

For example, Hybrid 39R34 has a relative maturity based on the Comparative Relative Maturity Rating System of 77. As reported in Table 2 of 6,018,113 Patent, 38W36 demonstrates a 93 relative maturity. The varieties are also different with respect to anther color, length of ear node leaf, silk color, and disease resistance. Differences between the two varieties are summarized in the table below:

<u>CHARACTERISTICS</u>	<u>39R34</u>	<u>37M34</u>
Comparative Relative Maturity Rating System	77	99
Anther color	Pink	Yellow
Length of ear node leaf (cm)	78.3	83.3
Silk color	Light Green	Red
Disease Resistance	Resistance to Common Rust (5) and European Corn Borer (2 nd generation) (9)	No teaching for Common Rust and Resistance to European Corn Borer (2 nd generation) (7)

This comparison clearly shows that 37M34 does not exhibit the characteristics of hybrid 39R34. Further, the present application clearly shows in Table 1 at pages 18-20 and Tables 2-4 at pages 22-26 that hybrid 39R34 exhibits a resistance to Eyespot, a lower Staygreen, moderate Anthocyanin-pigmented brace roots and the aforementioned characteristics.

In light of the above, Applicant respectfully requests the Examiner reconsider and withdraw the rejection to claims 1-32 under 35 U.S.C. § 103(a).

Conclusion

In conclusion, Applicant submits in light of the above amendments and remarks, the claims as amended are in a condition for allowance, and reconsideration is respectfully requested.

No additional fees or extensions of time are believed to be due in connection with this amendment; however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account No. 26-0084.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

Reconsideration and allowance is respectfully requested.

Respectfully submitted,



Heidi S. Nebel, Reg. No. 37,719
McKee, Voorhees & Sease
801 Grand Avenue, Suite 3200
Des Moines, Iowa 50309-2721
Phone No. (515) 288-3667
Fax No. (515) 288-1338
CUSTOMER NO: 27142

Attorneys of Record

- pw/LA -

Application No. 09/760,350

**AMENDMENT — VERSION WITH MARKINGS
TO SHOW CHANGES MADE**

In the Specification

The paragraph beginning at page 27, line 32 has been amended as follows:

With the advent of molecular biological techniques that have allowed the isolation and characterization of genes that encode specific protein products, scientists in the field of plant biology developed a strong interest in engineering the genome of plants to contain and express foreign genes, or additional, or [modified] modified versions of native or endogenous genes (perhaps driven by different promoters) in order to alter the traits of a plant in a specific manner. Such foreign, additional and/or modified genes are referred to herein collectively as "transgenes". Over the last fifteen to twenty years several methods for producing transgenic plants have been developed, and the present invention, in particular embodiments, also relates to transgenic versions of the claimed hybrid maize line 39R34.

In the Claims

Please amend claims 6, 8, 10-12, 14-16, 18, 19, 21, 23-25, 27-29 and 31-32 as follows:

6. (Amended)

[A] The tissue culture according to claim 5, the cells or protoplasts of said cells having been isolated from a tissue [being from a tissue] selected from the group consisting of leaves, pollen, embryos, roots, root tips, anthers, silks, flowers, kernels, ears, cobs, husks, and stalks.

8. (Amended)

The maize plant of claim 2 wherein said maize plant [is male sterile] further comprises a genetic factor conferring male sterility.

10. (Amended)

The [maize plant breeding program] method of claim 9 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

11. (Amended)

A maize plant, or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts, of claim 2, wherein said maize plant has derived at least 50% of its alleles from 39R34 [said maize plant] and is capable of expressing a combination of at least two 39R34 traits selected from the group consisting of: excellent yield potential for its maturity, good test weight, good early growth, above average resistance to head smut, good Gibberella ear rot tolerance, good resistance to European Corn Borer, [suited to the Northcentral region of the United States and Central and Western Canada,] and a relative maturity of approximately 77 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

12. (Amended)

[A] The hybrid maize plant according to claim 2, wherein the genetic material of said plant contains one or more transgenes.

14. (Amended)

The [maize plant breeding program] method of claim 13 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

15. (Amended)

A maize plant, or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts, of claim 12, wherein said maize plant has derived at least 50% of its alleles from 39R34 [said maize plant] and is capable of expressing a combination of at least two 39R34 traits selected from the group consisting of: excellent yield potential for its maturity, good test

weight, good early growth, above average resistance to head smut, good Gibberella ear rot tolerance, good resistance to European Corn Borer, [suited to the Northcentral region of the United States and Central and Western Canada,] and a relative maturity of approximately 77 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

16. (Amended)

[A] The hybrid maize plant according to claim 2, wherein the genetic material of said plant contains one or more genes transferred by backcrossing.

18. (Amended)

The [maize plant breeding program] method of claim 17 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

19. (Amended)

A maize plant, or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts, of claim 16, wherein said maize plant has derived at least 50% of its alleles from 39R34 [said maize plant] and is capable of expressing a combination of at least two 39R34 traits selected from the group consisting of: excellent yield potential for its maturity, good test weight, good early growth, above average resistance to head smut, good Gibberella ear rot tolerance, good resistance to European Corn Borer, [suited to the Northcentral region of the United States and Central and Western Canada,] and a relative maturity of approximately 77 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

21. (Amended)

The maize plant of claim 20 wherein said maize plant [is male sterile] further comprises a genetic factor conferring male sterility.

23. (Amended)

The [maize plant breeding program] method of claim 22 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

24. (Amended)

A maize plant, or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts, of claim 20, wherein said maize plant has derived at least 50% of its alleles from 39R34 [said maize plant] and is capable of expressing a combination of at least two 39R34 traits selected from the group consisting of: excellent yield potential for its maturity, good test weight, good early growth, above average resistance to head smut, good Gibberella ear rot tolerance, good resistance to European Corn Borer, [suited to the Northcentral region of the United States and Central and Western Canada,] and a relative maturity of approximately 77 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

25. (Amended)

[A] The hybrid maize plant according to claim 20, wherein the genetic material of said plant contains one or more transgenes.

27. (Amended)

The [maize plant breeding program] method of claim 26 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

28. (Amended)

A maize plant, or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts, of claim 25, wherein said maize plant has derived at least 50% of its alleles from 39R34 [said maize plant] and is capable of expressing a combination of at least two 39R34

traits selected from the group consisting of: excellent yield potential for its maturity, good test weight, good early growth, above average resistance to head smut, good Gibberella ear rot tolerance, good resistance to European Corn Borer, [suited to the Northcentral region of the United States and Central and Western Canada,] and a relative maturity of approximately 77 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

29. (Amended)

[A] The hybrid maize plant according to claim 20, wherein the genetic material of said plant contains one or more genes transferred by backcrossing.

31. (Amended)

The [maize plant breeding program] method of claim 30 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

32. (Amended)

A maize plant, or its parts, wherein at least one ancestor of said maize plant is the maize plant, or its parts, of claim 29, wherein said maize plant has derived at least 50% of its alleles from 39R34 [said maize plant] and is capable of expressing a combination of at least two 39R34 traits selected from the group consisting of: excellent yield potential for its maturity, good test weight, good early growth, above average resistance to head smut, good Gibberella ear rot tolerance, good resistance to European Corn Borer, [suited to the Northcentral region of the United States and Central and Western Canada,] and a relative maturity of approximately 77 based on the Comparative Relative Maturity Rating System for harvest moisture of grain.

Please add new claims 33 - 42 as follows:

33. (New)

A method of making a hybrid maize plant designated 39R34 comprising:
crossing an inbred maize plant GE533276, deposited as _____ with a second inbred maize
plant GE533139, deposited as _____; and
developing from the cross a hybrid maize plant representative seed of which having been
deposited under ATCC Accession Number _____.

34. (New)

A method of making an inbred maize plant comprising:
obtaining the plant of claim 2 and
applying double haploid methods to obtain a plant that is homozygous at essentially every locus,
said plant having received all of its alleles from maize hybrid plant 39R34.

35. (New)

A method for producing an 39R34 progeny maize plant comprising:

- (a) growing the plant of claim 2, and obtaining self or sib pollinated seed therefrom;
and
- (b) producing successive filial generations to obtain a 39R34 progeny maize plant.

36. (New)

A maize plant produced by the method of claim 35, said maize plant having received all
of its alleles from hybrid maize plant 39R34.

37. (New)

A method for producing a population of 39R34 progeny maize plants comprising:

- (a) obtaining a first generation progeny maize seed produced by crossing the maize plant of claim 2 with a second maize plant;
- (b) growing said first generation progeny maize seed to produce F₁ generation maize plants and obtaining self-pollinated seed from said F₁ generation maize plants; and
- (c) repeating the steps of growing and harvesting successive filial generations to obtain a population of 39R34 progeny maize plants.

38. (New)

The population of 39R34 progeny maize plants produced by the method of claim 37, said population, on average, deriving at least 50% of its alleles from 39R34.

39. (New)

A 39R34 maize plant selected from the population of 39R34 progeny maize plants produced by the method of claim 37, said maize plant deriving at least 50% of its alleles from 39R34.

40. (New)

The method of claim 37, further comprising applying double haploid methods to said F₁ generation maize plant or to a successive filial generation thereof.

41. (New)

A method of producing a male sterile maize plant comprising transforming the maize plant of claim 2 with a genetic factor conferring male sterility.

42. (New)

The method of claim 41 wherein a male sterile maize plant is produced.